CLAIMS

1. A recycling apparatus, comprising:

a frame having a pair of sides spaced apart in a lateral direction and extending in a longitudinal direction;

a plurality of shafts rotatably mounted in the frame, the shafts being spaced apart along the longitudinal direction at progressively greater heights and extending in the lateral direction;

drive means for rotating the shafts;

a plurality of discs mounted on the shafts, the discs being dimensioned, configured and spaced apart in the lateral direction for classifying a stream of mixed recyclable materials deposited onto the discs as the discs are rotated by the drive means to convey a portion of the stream along an inclined conveying direction;

a source of pressurized air;

an air manifold extending laterally across the plurality of discs for blowing air to help covey the portion of the stream upwardly off of the discs by rotation of the discs; and

ducting within frame for connecting the source of pressurized air and the air manifold, the ducting extending through at least one side of the frame.

2. The recycling apparatus of Claim 1 wherein the ducting is comprised of hollow box beams forming at least a portion of the frame.

3. The recycling apparatus of Claim 1 wherein the source of pressurized air comprises a blower operatively coupled to the ducting within the frame.

4. The recycling apparatus of Claim 1 wherein the air manifold is mounted above the discs for blowing air downward toward the discs for pushing the portion of the stream against the discs.

5. The recycling apparatus of Claim 1 wherein the axes of at least some of the shafts extend in a common plane.

6. The recycling apparatus of Claim 1 wherein the shafts are arranged in a generally V-shaped configuration.

7. The recycling apparatus of Claim 6 wherein the disc screen is also inclined along the lateral direction so that bottles and containers will travel laterally off of a lowermost region of the recycling apparatus.

8. The recycling apparatus of Claim 1 wherein the air manifold includes at least one conduit extending in the lateral direction and having a plurality of laterally spaced nozzles.

9. The recycling apparatus of Claim 8 wherein the conduit is formed of a segment of pipe with holes bored therein to form nozzles that eject streams of air toward the discs.

10. The recycling apparatus of Claim 1 wherein the air manifold includes a plurality of conduits spaced apart along the longitudinal direction and extend in the lateral direction, each of the conduits having a plurality of nozzles spaced along the lateral direction.

11. A recycling apparatus for classifying a stream of mixed recyclable materials, comprising:

a frame including a base and a pair of inclined sections hingedly mounted to the base to define a generally V- shaped configuration;

a plurality of shafts rotatably mounted on the frame and spaced apart in a longitudinal direction at a plurality of different vertical heights to follow the generally V-shaped configuration;

means for rotating the shafts of a first portion of the lowermost region and the shafts of the first vertically inclined region adjacent thereto in a first direction;

means for rotating the shafts of a second portion of the lowermost region and the shafts of the second vertically inclined region adjacent thereto in a second direction;

a plurality of discs mounted on each of the shafts, the discs being laterally spaced along corresponding shafts and interleaved with the discs of adjacent shafts and defining a centrally located lowermost region and first and second vertically inclined regions extending from opposite sides of the lowermost region, the discs being shaped, spaced and configured for classifying a stream of mixed recyclable materials deposited onto the lowermost region; and

the first and second vertically inclined regions being configured so that a portion of the stream of mixed recyclable materials deposited onto the lowermost region can be conveyed up the inclined regions and over a pair of terminal upper ends of the inclined regions.

12. The recycling apparatus of Claim 11 and further comprising a first air manifold for directing air downwardly against the discs of the first vertically inclined region and a second air manifold for directing air downwardly against the discs of the second vertically inclined region.

13. The recycling apparatus of Claim 11 and further comprising lifting means for varying an angle of vertical inclination of the inclined sections of the frame.

14. The recycling apparatus of Claim 12 wherein the first and second air manifolds each include a plurality of laterally extending conduits each having a plurality of laterally spaced nozzles.

15. The recycling apparatus of Claim 11 wherein the discs each have an irregular outer contour for agitating mixed recyclable materials

16. The recycling apparatus of Claim 12 and further comprising a blower coupled to the first and second air manifolds.

17. The recycling apparatus of Claim 16 wherein the blower and the air manifolds are coupled via ducting in the frame.

18. The recycling apparatus of Claim 12 wherein the first and second air manifolds are positioned sufficiently close to the first and second vertically inclined regions so that containers that are partially conveyed upwardly along the first and second vertically inclined regions can tumble over the first and second air manifolds.

19. The recycling apparatus of Claim 11 wherein the first lateral spacing between the discs of the lowermost region is less than the second lateral spacing between the discs of the first and second vertically inclined regions.

20. A method of classifying mixed recyclable materials, comprising the steps of:

providing a generally V- shaped disc screen with a lowermost region and a pair of vertically inclined regions, the lowermost region forming a trough inclined in a lateral direction;

depositing an incoming stream of mixed recyclable materials onto the trough;

passing a first portion of the mixed recyclable materials between a first plurality of discs in the trough to form a first stream of classified materials;

conveying a second portion of the mixed recyclable materials up and over a second plurality of discs in the vertically inclined regions of the disc screen and off a pair of upper terminal ends of the vertically inclined regions to form second and third streams of classified materials; and

conveying a third portion of the mixed recyclable materials along the lateral direction over the trough and off of a lower end of the trough to form a fourth stream of classified materials.

21. A recycling apparatus, comprising:

a frame having a pair of opposite sides;

a plurality of shafts each having hollow ends;

means for rotatably mounting the ends of each of the shafts to the sides of the frame so that the shafts extend in spaced apart, substantially parallel relation, including a resilient deformable plug inserted into an end of a corresponding shaft, a stub shaft inserted into a hollow interior opening in the plug, and a least one bearing assembly supported by the frame, the stub shaft having a portion journaled in the bearing assembly;

drive means for rotating the shafts; and

a plurality of discs mounted on the shafts, the discs being dimensioned, configured and spaced for classifying materials deposited onto the discs as the discs are rotated by the drive means.